



Improving COLLEGE AND UNIVERSITY Teaching

Editorial
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"Fifth Year"

MOST AMERICANS find symmetry and normality in a college quadrennium. It appears as divinely designed as North, East, South, and West. Faculties, students, and the public expect something like magic to be accomplished in four momentous years. Yet why four years? What started the fixation on four years? Was it the Greek Olympiads, the four Gospels, the Apocalyptic horsemen, or the four year Presidential term? Nobody apparently has proved that four years are either required or sufficient for putting the collegiate stamp on young Americans. In fact, the hosts of students who do not survive four years and the hosts who are graduated amid lamentations on the inadequacy of the college years alike show that four years are either too much or too little. Curricular deviations—one year, two year, and three year undergraduate programs and graduate and professional school programs of varying length—are frequent and increasing. Yet while many people will commend such deviate curricula, their proponents must often defend them. No one has to defend the quadrennium.

When a college undertakes to correct the insufficiency of four years, the initial step usually is to add a fifth year. The "fifth year" therefore is symbolical of the whole movement in higher education to supplement the traditional undergraduate quadrennium. In its full development the movement includes graduate, professional, and adult education in their many forms.

The Conan Doyle mystery story *The Sign of*

Four can provide an allegory to interpret the relationship of the college and the supplementary programs. Four men who had secret knowledge of treasure had a solemn pact: "We have sworn it. The four of us must always act together." But as all four of them together could not move the treasure, they enlisted partners to whom they promised "a fifth share." The quadrennium may be enough to establish a title to the treasury of knowledge, but it usually takes the "fifth year" to move it.

Perhaps the liveliest chapter in the unfolding story of education today is that of education built upon and around the traditional college. Its leaders see its future, better oriented and better implemented than anything yet achieved. Need is felt for autonomy for continuing education, for professors specially enlisted with skill in teaching adults, for faculties organized and working as day college faculties do. And the thoughtful can see what the impact may be on undergraduate education if continuing education—adults teaching adults—may have demonstrated the practicability of new teacher-student relationships on a higher level than has been deemed possible in undergraduate teaching.

There is a striking contrast between the concept of the self-contained college and the college supplemented by a wide-flung program of continuing education. There is too little articulation of schools with colleges and colleges with adulthood. William Rainey Harper sought systematically to build college programs on the basis of the preparatory work taken by individual students. That was two generations ago, and still we find professors who not only deplore what they regard as the poor quality of high school physics or English or mathematics but prefer to ignore previous work students have had in their field.

But continuing education tends to change this. Instead of being closed as it were between constricting walls, the college classroom is opened on both sides. Though it still has a degree of shelter permitting concentration on serious study of a subject, it can assume that students will continue to study after they leave college—soon after if they enter graduate or professional schools, intermittently throughout adulthood as needs and conditions prompt.

Education thus can be what Horne conceived it: an eternal process coincident with life.

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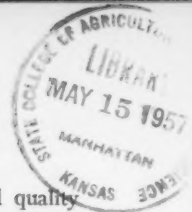
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Teacher + Curriculum = ?

College education is neither teacher nor curriculum nor both together, but rather the total college experience—this is the view here presented in a teacher's talk to teachers, an outstanding feature of the meeting at the University of Utah last summer of the Pacific Northwest Conference on Higher Education. The address is brought to our readers by courtesy of the regional Conference. The speaker (B.S., M.A., Idaho; Ph.D., Columbia) was an administrator in the Naval School of Military Government 1942-45, a member of the International Secretariat in the United Nations Conference in San Francisco 1945, faculty member in government at Columbia University 1945-49, is an author in his field, and has been Dean of Columbia College since 1950.

By LAWRENCE H. CHAMBERLAIN

WHEN A TEACHER or even an ex-teacher is accorded the privilege of talking to fellow members of the guild, his pleasure over his good fortune is tempered just a little by the difficulty of deciding which of the multitude of inviting subjects he will discuss. Any choice will inevitably prevent him from discussing several other equally enticing topics.

Education is never lacking in pertinent subjects, but it seems to me that the period in which we now find ourselves is particularly rich in issues and problems that have educational implications. I mention two just to illustrate how provocative and tantalizing are the questions that confront education and educators today. For example, liberal arts education faces an interesting dilemma. Today the liberal arts are not especially popular with students entering college. A preponderant proportion of entering students show a definite preference for vocational courses. Simultaneously, the business, technical, and professional worlds seem to have rediscovered the liberal arts, particularly the humanities. What is the explanation of this interesting paradox and what is its significance for curriculum planners?

Or take another example: American students show an increasing aversion to mathematics and science. The decline in registration in these subjects at both high school and college level has accelerated sharply during the postwar decade. Yet during this same period the Soviet Union has

greatly expanded both the quantity and quality of its work in this field. Is this an educational problem? Is this matter for the educator or for the statesman or for the citizen?

These are typical of the problems that await study, research, discussion. They fall squarely in our laps as academicians, but they certainly cannot be contemptuously dismissed by the practical as merely *academic*.

But these and other equally inviting questions must be reserved for another occasion. Let us look first at the teacher and then at the curriculum.

At the outset I wish to make clear that I hold no activity more difficult or more demanding than that of the successful teacher. To put it the other way round: to be a successful teacher places just as high a premium on intelligence, imagination, courage, and integrity as does any other profession or calling. I am grateful to note that the old cliché "those who *can*, *do*; those who *can't*, *teach*" no longer has the currency in the non-academic world that it did at one time. The outstanding performances of educators in the military and civilian branches of government over the past two decades and the raiding by business and industry during the postwar era have erased any lingering suspicion that academic life is a refuge for inferior or competitively ineffective persons.

As a matter of fact, the record of teachers in the world of business and government has been notably more bright than that of business men in education. Those who *can* and *do* cannot necessarily teach. Many examples come to mind, but I shall mention only one. During the past year, as part of a vocational orientation program we arranged a series of lectures. Outstandingly successful representatives of six fields were invited to interpret to college students their respective fields. Included were: business, engineering, finance, government, law, and medicine. Each person took his assignment seriously, prepared carefully, and obviously exerted his best effort to transmit his message to his undergraduate audience. The results were disappointing. Except for the lawyer and the doctor who had previous teaching experience, these highly qualified specialists simply failed to communicate.

Teaching is just as much an art as acting. Brilliance may or may not be a part of the good teacher's equipment. It is certainly an added

asset in the repertoire of the gifted teacher, but brilliance in and of itself does not assure effective teaching. Good teaching is an amalgam of many things, but given intelligence and integrity, which are absolute essentials, I think empathy—the ability to put oneself in the other fellow's shoes—is the basic requisite. In the final analysis, however, good teaching is an intensely personal phenomenon, personal from the standpoint of both the teacher and the student, and the indices of judgment are infinitely more subtle than the average layman appreciates. The difference between a good teacher and a poor one or even a run-of-the-mill routinizer is great, yet sometimes difficult to distinguish. If teachers were judged on the same basis as baseball players—batting averages, runs batted in, and fielding averages, or games won and lost and earned runs—we would have a more objective basis for appraising their effectiveness. Since no such quantitative rating system is available, the problem of establishing appropriate criteria is presented.

What distinguishes the good from the poor or the average—the journeyman—teacher? Popularity with students? I think of the man I once had as a colleague who in two years' time enjoyed a phenomenal increase in registration from 30 students to over 300. His method was simple. In his own words, he *put on a good show*. Each class hour began with a gag session during which the instructor undertook to top any anecdote, riddle, or jingle produced by a member of the class. The effects were noteworthy. Motivation was excellent, attention rapt, and student involvement—a quality which nowadays receives a high rank in the scale of pedagogical virtues—was virtually 100 per cent. And it was not only the poor students who responded to this academic hoax. I was a little chagrined to learn from some of my best students who were enrolled in Professor X's courses that they regarded him as a stimulating teacher and apparently accorded him full respect notwithstanding his unorthodox methods.

At the time the student reaction was shocking and upsetting to me. I kept asking myself what was the use of devoting long hours to serious preparation of my courses if even my best students seemed to make no distinction between my classes and those of my diverting colleague.

It so happened that I left the institution at the end of the year so that I did not have a chance to observe the long range effects of this

novel experience in educational psychology. I suspect the results were inconclusive because the following year the war intervened and upset all kinds of academic schedules, including, I imagine, the one I have been describing.

Many times, however, in the years since then I have thought about that experience—or experiment, if that is a more accurate term—and pondered what it meant. What significance, if any, did it have for me and for teaching—indeed, for education in general?

What, I have asked myself, is a *valuable educational experience*? Suppose for a moment that my teacher-entertainer colleague had taken the trouble to challenge my outraged sense of professional self-righteousness by asserting that he was doing a more effective job of teaching than I was. On what ground could I challenge his claim and what evidence could I offer to sustain my position? The point affords some embarrassment because the indices of pedagogical effectiveness are elusive and tend to be circumstantial rather than demonstrable. Voluntary attendance? His Hooper rating was better than mine. Sustained attention? He was attaining close to 100 per cent: I was glad to settle for 75 per cent. Carryover from the classroom to the student's out of class thoughts and conversation? Here I had to admit that I compared unfavorably.

What then could I fall back upon to establish the superiority of my instructional methods? Retention of material at the end of the term—or after some stated interval? In the first place, there was no possibility of establishing such a test because neither of us could possibly arrange to repeat our examinations four or six or ten years later. And besides, despite our marked differences in pedagogical philosophy—or at least in teaching methods—we would probably have agreed that what were were trying to accomplish through our teaching—of political science in one instance and European history in the other—could not be effectively measured by repeating our final examinations a half dozen years after our students had left college.

Perhaps this point is pertinent enough, indeed fundamental enough, to deserve further examination. What indeed is a *significant educational experience*? In the course of a teacher's career thousands of students pass through his classes. But if each of us, whatever our field of subject matter, faces the simple question, how many of them have we vitally changed, would our "batting

average" approach the magic .300 that is supposed to be the index of superiority?

For most of us the subject matter of our courses assumes the major if not the sole concern in our instructional responsibilities. This is not unnatural since we are subject matter specialists—we are teachers of English or mathematics or economics. But ask yourself how much do you remember of your undergraduate courses. I suspect that the answer will be rather disconcerting despite the fact that your orientation was probably more academic than that of most of your classmates because you have chosen an academic career. The blunt fact is that for most students in college their courses are artificial and only an insignificant fraction of the subject matter takes or endures. This is but another way of saying that if the student's college educational experience is measured only by the subject matter that he assimilates and retains his return is meager.

As I look back upon my own undergraduate experience—a very happy and satisfying time incidentally, because I thoroughly enjoyed my academic work—I am surprised and just a little shocked by the realization that the professors whose classes I enjoyed particularly were not the ones who contributed the most to my own educational development. This discovery was sufficiently upsetting to lead me to review my own teaching experience, and the results have been almost equally startling. Except for individual tutorials and seminars where the amount of sustained personal contact was much greater than in any class—even a small one conducted on a discussion basis—I am convinced that any lasting impacts I have made upon the students I have had and enjoyed were the outgrowth of out of class contacts where we were able to remove the teacher-student psychological barrier and converse on a person to person basis. Whenever this happened, I never failed to be impressed with the fact that only as I talked to the individual outside class did I discover him as a person as distinguished from a student or pupil. The difference is fundamental in my opinion. Try as I might, however, I have never been able to achieve the person to person relationship in class even though the discussion was uninhibited and the group rapport excellent.

The more I see of education at the undergraduate level the more impressed I am with the power for good of the good teacher but the less willing

I am to accept any single or simple criterion for measuring goodness.

LET US then turn our attention to the curriculum. All of you have participated in designing and constructing a curriculum, possibly several curricula. Perhaps some of you have won service stripes and even citations for conspicuous achievement in curricular battles and wars.

Curricula are certainly an integral part of education. They are not mere paraphernalia, part of the ceremonial trappings: the jargon and officialness of the profession. Surely the curriculum is just as central to an educational enterprise as the score is to an orchestral rendition of a symphony. I am inclined to believe, however, that the analogy is not a happy one. In fact I am afraid it is singularly unfortunate because it emphasizes that which should be muted.

In the case of a musical composition the score is fundamental. The orchestra and conductor are successful only to the extent that they can reproduce the musical experience conceived by the composer. Each member of the orchestra may indeed have a musical experience that is essentially creative and certainly intensely personal as a result of his participation in the performance. This is incidental to the occasion, however.

Quite the opposite is true in the case of a curriculum. No curriculum is an end in itself. Education does not take place merely by a rendition of the curriculum by the teacher and his class. It is not like a Beethoven symphony or a Mozart opera which will reveal new truth and emotional riches to those who apply themselves to a searching study of it.

Yet I have the impression that much of our educational practice does in fact bear an uncomfortably close resemblance to an orchestra rehearsal. Each member of the class is directed to study the particular composition on the current program. When the class hour arrives the class as a whole will grind through all or part as the teacher-conductor directs. Here and there individual members will try their hand at solo selections.

In some undefined and undisclosed manner the daily repetition of this undifferentiated routine is supposed to produce an education.

If a college has a set of objectives they must necessarily be something more than attaining minimum proficiency in a certain number of courses—unless it can be demonstrated that a minimum proficiency in X number of courses—specified or elected—automatically guarantees ful-

fillment of the objectives of the college.

We must then face this question: does the offering of a series of courses in a number of departments constitute an adequate college program? If each department, through its wisdom and best judgment, selects the appropriate courses and then supervises their most efficient presentation, has it discharged its college responsibility? To ask this question is to answer it in the negative. No one who has attended a college or taught in one will subscribe to the thesis that a college education is merely a series of courses or that a series of courses is a college education.

We all know that this is true when the issue is put squarely before us. I doubt, however, if we act accordingly. I have made no exhaustive investigation to assemble my facts, but I think I am on sound ground when I say that more faculty time is spent on curriculum revision than on any other single activity except teaching—and I am not sure that even that exception is needed.

There must be an assumption here that curriculum construction and revision have a direct and positive relationship to the quality of educational experience that the college in question provides. I submit that the evidence to support this assumption is extremely meager and inconclusive.

It is true, I think, that curricular revision sometimes produces a valuable byproduct by arousing faculty interest and enthusiasm and thereby increasing their output of energy. For this reason, alone, I believe that periodic curriculum revision is healthy even though the rearrangement of course offerings fails to produce the miracle hoped for.

What I have said may sound like heresy. Some of you may feel that I am deliberately trying to be sensational. I have no such intention or desire. The point I wish to make is simply this: the curriculum in and of itself is not as all important as most faculties and administrations are inclined to want to believe. What is important is the *total institutional spirit* and atmosphere, and this is an amalgam of faculty, administration, curriculum, extracurricular program, social, recreational, and spiritual life. It is reflected in the institution's values, objectives, and operating premises. It is expressed in the kinds of students who are attracted to the institution, the kind that are admitted and what happens to them during their college careers. Recent studies indicate definitely that there are significant differences between institutions and the influence they exert upon

their students but that this is a matter of total institutional influence rather than just courses or curriculum or individual teachers.

THE IMPLICATIONS of this evidence cannot be brushed aside. College education is neither the teacher nor the curriculum nor both together; it is the total college experience. It is my personal conviction, moreover, that the total college experience of the future will have to become both more inclusive and more integrated if it is to perform its full act in preparing young people for their triple role as individuals, income producers, and citizens.

Intellectual training is the prime function of any college. Some hold the view that intellectual training should be the only function of a college. They insist that a college confine its attention to the development of the mind. They base their case upon two points: (1) no other institution accepts this responsibility or is equipped to discharge it; (2) intellectual training is a large task, the time available is already too short, and if a college attempts to extend its limited resources to include training in other areas the inevitable result will be a diluted intellectual training. This may be typified as the "most effective use of resources" philosophy. It has great appeal; it is logical and persuasive. But I wonder. I do not deny or minimize the importance of intellectual development. But we cannot escape the troublesome question: can a college afford to ignore everything except the intellectual part of human development? Can it be assumed that the cultivation of a young man's mind will equip him for all of his adult responsibilities? I do not believe so.

The pattern and the tradition of American college education that have concentrated upon cultivation of the intellect were set when few young men attended college. For the most part they came from family backgrounds with a strong tradition of spiritual, moral, and social responsibility. The family, the church, and the social group, individually and in combination, helped shape the character of the college man. It remained for the college to concentrate upon his intellectual development.

Today this is much less true. The situation has changed in two respects: (1) college enrollments are no longer limited to the aristocratic few; (2) the family, the church, and the social group have declined in influence. The result: many of the young people who now enter college not only are in need of intellectual development but are un-

shaped and underdeveloped in respect to their social, moral, and spiritual resources.

The assumption that intellectual discipline inevitably carries a warranty of personal integrity and social responsibility is not sustained by experience. The college trained young man of today does indeed outperform his less highly educated countryman in earning power and business success. In such matters as personal honesty, social responsibility, and civic service, however, the record is less impressive. In fact, it sometimes seems as if there is an inverse relationship between education and participation in the political life of the community. A college education should increase both one's individual and social potential, but there is no clear evidence that it actually does. There must be some reason for this failure.

The college years represent one of the most crucially formative periods of an individual's life. His transition from school to college represents much more than the substitution of one educational institution for another. Whether he goes away to college or continues to live at home his entry into college marks the end of one epoch in his life and the beginning of another. Family ties and parental controls are relatively less influential than before. In addition to a new social environment the young man encounters a new intellectual climate. New knowledge, new ideas, new points of view, some of them of shocking import, all combine to complicate and confuse his view of the world in which he lives. The pressure on him is further increased by the realization that he must decide on the vocation or profession that he will follow for the rest of his life.

For these and other reasons college life has a tendency to insulate the student from the real world outside. He is at once cut off from the outside world and turned in upon himself. He develops habit patterns that include no time for carrying his share of the community service that is every individual's privilege and responsibility. At the time when he has reached the state of physical and emotional readiness for entering into the real world of the community and its affairs he withdraws into the seclusion of the classroom and the campus. Four years preoccupation with the artificial world that a college campus represents make an impact upon the student that is of lasting influence. If the young man grows up in an atmosphere which absolves him from responsibility for the welfare of his community at the very time when his intellectual world is being

enlarged and enriched, his total development cannot escape artificiality. Unless his college experience has laid solid foundations in both the theory and the practice of social responsibility, many a college trained man will never take his first step. The first post-college years are likely to be absorbed wholly with professional training or getting started in the business world and raising a family. Little time will be available for extras and unless the spirit of public service is reinforced by the habit there is little likelihood that the needs of his community will be included in his scheme of life.

Men with well trained minds are needed, but intellectual development is not exclusively a matter of the library, laboratory, and classroom. Learning involves more than feeding and exercising the mind. By the time a young man has reached the age of eighteen he is no longer a school boy. Physically, psychologically, and socially he is an adult member of the society in which he lives. In wartime a man who has reached the age of eighteen is considered old enough not only to fight but to accept responsibilities of command. He is not sheltered from the outside world for four years while he develops his mind and grows up.

For the great segment of young men who do not go on to college the situation is much the same. They enter into the affairs of the community as full scale members without a four-year period of insulation. Why should the college man postpone his entry into the full estate of young adulthood until after completing his college studies? Much of what he studies is directly related to the outside world. A judicious blending of theory and practice during his formative period will place his academic studies in a more meaningful perspective and better equip him for critical and discriminating assimilation of knowledge instead of mere absorption of untested theories or information. We must get away from the idea that college is a prelude to life, that it is a four-year extension of the carefree school boy idyll that has preceded it.

We hear much these days about acceleration—the shortening of the college course. I would rather stress the desirability of broadening the college course by introducing the idea that intellectual development and social responsibility are not only integral components in the educational process but also coordinate values in a democratic society.

The traditional policy that college should concern itself with the development of one's intellectual equipment and that entry into the world of affairs should come afterward does not seem to be sound in theory or to stand up under the test of experience. A person should not think of college as a place to learn and the remainder of his life as a place to do—that is, to put into practice what he has learned. Learning should be lifelong and this should be stressed in college by building into the college program the dual character of life: learning and doing. The learning in college is more likely to sink in and the *doing* is more likely to be well balanced and serviceable if it has been begun and carried some distance during the college years.

ALL OF THIS takes on an added meaning if considered in the context of two developments with which all of us are familiar. In the first place, college can no longer be thought of as anything more than laying the ground work for further specialized study. Whether it is followed by professional school or graduate study or by on-the-job learning in business, industry, or government, college today is *foundational* not terminal.

Second, more of our young people are going to college. The numbers and the proportion will

continue to increase. This accentuates the need of building into college the broader, the dual objectives of intellectual and social development so that from our colleges will come the ability and the responsibility of making our system of self-government work.

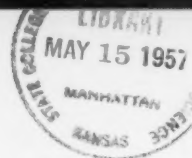
Any institution that takes pride in the excellence of its academic program is under special obligation to provide its students with the opportunity to develop along with their minds those other capacities which a virile democracy must receive from its citizens. Specifically, in addition to scholarly excellence each student should develop a working knowledge of self-government, a sense of social responsibility, a spirit of service, and a habit of active participation in the affairs of his own community. It should be noted that all of these requisites of good citizenship involve action as well as understanding.

The college program that embraces all of these objectives will be something different from that in vogue today. I am confident that it will come, however, and I think the time is not far off. When it does, not only the teacher and the curriculum but the institution of which they are a part will contribute to the development of a sense of responsibility and a respect for values implicit in the term mature conscience.

To Share, To Stimulate, To Guide

"The teacher's responsibility is not only to share with students the substance of a field of learning, but also to stimulate and guide growth in mind, character, and personality. One is instrumental to the other. Instruction is most effective when the teacher knows (1) the ends of growth to which his teaching is directed, (2) the learning qualities of his students, and (3) the ways in which the subject matter may be shaped in order to serve its function. Instruction is never without outcomes in growth beyond attainment of academic knowledge, but unless they are planned and controlled as far as possible, the outcomes may be fortuitous, undesirable, or inefficient. To realize the fullest educational potentials of teaching one must first assess the values and possibilities of a subject, then plan, organize, and conduct instruction accordingly."

—JOSEPH JUSTMAN and WALTER H. MAIS, *College Teaching: Its Practice and Its Potential*. New York: Harper & Brothers, 1956, Page 30.



A Service to Students

Is not the student entitled to know in advance the relative weight that such factors as examinations, outside work, and class participation will have in determining the grade he gets in a course? Here is the answer of one professor (B.A., Shaw University; M.A., Ph.D., Wisconsin) who is head of the Department of History at Morgan State College, Baltimore.

By BENJAMIN QUARLES

AT THE END of a semester it is a commonplace experience among department heads and similar lower echelon administrators to have a student come to the office and complain that the course grade that Teacher X turned in for him was grossly unfair. As supporting evidence the student will produce an assignment paper or a test paper which bears a much higher grade than the final course grade turned in for him. The listening administrator instinctively feels that the student is overweighing the relative importance of the papers he has exhibited. But in justice to the student, it may be that he was never enlightened as to the relative weight of the various components of the course.

Does not the teacher owe this to his students: to set down as clearly as possible the information on just how the final grade for the course is to be determined? Might not a teacher be prepared to state just how much the examinations counts, and the "outside work," and the day-to-day response in the classroom?

Such matters loom large in student thinking and to dispose of them clearly is a big step in getting off to a good start. This information could be effectively presented on class-opening day, following a statement of the aims of the course and an overview of its content. If this criterion for the course grade is not included in materials which are distributed as the students take seats, the instructor might place on the board a formula, of which the following is an example:

HOW THE COURSE GRADE IS DETERMINED

I. <i>Written Tests</i>		
Three 50-minute examinations	30	
Final examination	20	
Eight Quizzes	15	
		65
II. <i>Written Assignments</i>		
One lengthy topic	15	
Map work	5	
Chapter summaries	5	
Article outlines and reviews	5	
		30
III. <i>Oral recitation and class reports</i>		
Total	5	100

After running through these points (and the criteria listed above are merely suggestive and not offered as a model), the instructor might then indicate what numerical range indicates an A for the final grade, what range is for a B, and on down to the lowest grade.

Such a procedure would seem to have marked advantages. It would remove the widespread belief that the instructor's grading system is shrouded in mystery. In its place would come the feeling that in this course the student's progress would be evaluated objectively and his grading would not be arbitrary or otherwise subject to caprice. The disappointed student could not voice the familiar, "I don't know how he grades," in injured accents which clearly imply that the teacher is playing by ear, if indeed he is following any score at all.

To spell out the criteria for the course grade has the further advantage of letting the student check upon his own progress, and furnish his own answer to the commonly put question, "Where do I stand?" He is thus enabled to avoid the wishful thinking pitfall that he is getting along much better than is actually the case (low achievers are notoriously optimistic). Illusions of scholastic well-being do not flourish where the student clearly understands the relative worth of the various grades he receives: an A on a ten-minute quiz is not likely to lull a properly informed student to rest on his oars.

And finally to the teacher the stating of criteria for the course grade serves as a desirable self-survey. It forces him to come to grips with the question: what procedural aspects of this course are really important in my thinking?

This leads to a further questioning about the number of quizzes, examinations, assignments, and oral reports that should be given, and their comparative worth. The teacher thus confronts the issue: in my courses, how is performance measured?

This is the crux of the matter. For even though a set pattern of grading is open to the criticism of being too mechanical, or too rigid, or too much of a placing of emphasis on "getting of grades" rather than mental coming-of-age, a teacher cannot bypass the fundamental question: by what criteria do I measure failure and success?

The Role of Role Playing

The chairman of the psychology department at Yale University (A.B., Nebraska Wesleyan; A.M., Oregon; Ph.D., Iowa) has written a four hundred page book "College Teaching: A Psychologist's View," just published by Harcourt, Brace and Company. What began as an uncommonly strong interest in teaching, he says, has gradually developed into the avocation of trying to improve college instruction. The excerpt from his book here presented has been chosen by the editor, the author avowing that it perhaps is one of the portions of the book least his own. The editor regards it as an excellent concise presentation of author and publisher to print it here. Copyright 1956, by Harcourt, Brace and Company, Inc.

By **CLAUDE E. BUXTON**

THE kind of role playing with which we shall be concerned here has been called sociodrama, to indicate that the focus is not on the individual role player so much as on the culturally defined role which he assumes and reflects and with the interaction among roles. Perhaps this variety of role playing should be regarded as less dangerous to the self-regard of the player; certainly it lends itself to the more generalized interests of an educational group.

As will become evident in the ensuing discussion, particular role playing episodes may be used to achieve widely varying specific course objectives, in addition to teaching the ability to observe behavior analytically. On one occasion or another, as Maier (7) has implied, role playing may be used to make students aware of the existence of a particular psychological problem; to develop sensitivity to the feelings and attitudes of another person; to illustrate particular psychological principles; or to add variety, interest, and involvement to the course. In role playing verging on psychodrama in certain respects, the objective may be to develop student skills in being permissive, in taking leadership roles, or in securing cooperation or social action from others.

STEPS IN THE PROCESS

Because role playing as a classroom technique is both complex and unfamiliar to many begin-

ning teachers, it may be helpful to organize our discussion around an analysis of the component processes through which a teacher and class go in using the method. There are a number of good references to consult (5, 6, 7, 9). In advance it must be recognized that to plan, stage, and analyze a playlet, the instructor will ordinarily act as director. But the important thing is that he is director with regard to procedures, and functions only as a person who knows the necessary steps and stages in the role playing process. He is definitely not a controller of the actual lines and actions. These are the unrehearsed production of the student players, and it is the very unrehearsed or spontaneous character of this behavior which creates the authenticity of the behavior sample. When role playing is utilized, the following steps are likely to be taken, although steps may be combined or may occur somewhat out of order, and there will be numerous reversals as thought about the playlet develops or the scene itself is prepared for action.

► Role playing begins with the formulation of the problem which is to be played out. This by definition in sociodrama is some problem of interpersonal relationships, chosen to relate to a current topic in the course. At this stage of planning, the problem is typically at the level of "What produces strong rebellion against parents in some adolescents?" or "What factors work against attempts at desegregation in a (given) community setting?" The problem must be formulated in a way limited or simple enough so that when it is role played details will be understood and remembered and audience involvement and participation in the discussion will come easily. The problem itself may come from class discussion or, more commonly, from the instructor's experience with what is likely to be useful at a particular stage of his course; it nevertheless may be shaped considerably by preliminary discussion, possibly by the whole class but more likely by those who are going to take a part in playing it out.

► After formulation of the problem, a situation must be established in which the action is going to occur. This situation must be appropriate to the problem, so that the assumption of roles in it is perceived as pertinent. As simple examples, in the illustrative problem concerning adolescent rebellion, a natural situation could be that of a conver-

sation between a girl who has come in late and the parents who have waited up for her, or between the boy who wants a jitney of his own and the father who would have to help pay for it. In the desegregation example, an appropriate situation might be the conversation between the principal and the parent of a Negro child who brings the child to be enrolled in what was previously an all-white school in some particular kind of locality. The situation, again, may be set by the instructor, or it may be worked out very usefully by those who are going to participate in it, or it may even be influenced at the planning stage by those who are later to be the audience. For certain purposes the instructor may find it valuable to rely upon relatively stereotyped and familiar situations (1), but the danger in this seems to be that the stereotyped situation may not be wholly appropriate for any given group. Sometimes a situation is selected because it clearly comes in phases which require separate actions and analysis (introducing the new Negro pupil to a largely white school), and sometimes because it has a very clear termination point and is relatively brief (an employment interview). In all instances the playlet must be capable of being interrupted, if not terminated, after only a few minutes of action, so that memory and analysis are not confused by the sheer quantity of action. Finally, the situation may be chosen so that its goal is clearly one of arriving at some resolution of interpersonal conflict (as in joint problem solving) or, with equal definiteness, the avoidance of any implication that a problem is to be solved by the interaction (as in exploration of attitudes, particularly when these are to serve as a point of departure for wider discussion after the role playing is terminated).

► Casting must be considered next. For the purposes of sociodrama, persons are chosen because they are thought to be able to carry a particular role well, and not to feel threatened or exposed by it. The most unfavorable roles, if there are such, may well be given to persons with the greatest security or prestige in the group, on the assumption that they will be least threatened. What is involved in these considerations is what Grambs (3) has called the feeling of psychic nakedness. That is, the person who plays a role, especially for the first time, tends to feel caught in an unfamiliar or emergency situation in which he may expose his inner self to the group. The result, quite apart from its consequences for the individual, may be constricted and unspontaneous

performance, so that the whole group benefits less by it. By using volunteers primarily or altogether, by stressing the cultural, not personal, definition of roles, by not pressuring any individual to take part, and especially by stressing an attitude of objectivity by the individual toward his assigned role and by the audience toward the role as it is played (always de-emphasizing the individual in it), it is possible to overcome the unease relating to participation and yet arrange for a cast suited to the problem.

► A fourth distinguishable process in role playing is that of preparing for the presentation. The degree and kind of preparation can scarcely be described as following a prescribed pattern, for they depend upon so many variables. For example, brief oral sketching of the situation and a sentence or two naming the roles for the players may be sufficient, but at times a written layout of the situation and description of roles may be desirable for the players or for the audience or both. In a good many instances the preparations are different for different persons. For example, if the point of a playlet is to analyze barriers to communication, as in the desegregation example mentioned earlier, the person having the role of the Negro parent may be kept in ignorance of attitudinal instructions to the principal, or vice versa. Or, if the point is to analyze how private feelings such as suppressed hostility affect public actions, the motives of a person in the role of employment seeker may be structured but kept from the person assigned to interview him by removing the latter from the room during preparation for role playing. Bavelas (1) suggests that it may be desirable to structure all roles but the one which is of primary interest at the moment. It must be repeated that the preparations we speak of, or the structuring of the situation or the role, provide only the framework within which the role playing will occur and never the actual content of what is to be done or said. The latter, in its spontaneous form, is the point of the whole procedure, and its effect is thoroughly weakened if it appears coached or predetermined. As a final aspect of preparation for role playing two points may be mentioned. Oftentimes props are desirable; in fact, using a table as an office desk, a pointer as a boundary-line fence, and so on, helps achieve something of the stage atmosphere which is essential to adoption of a role or acceptance of it. The props, and in addition various kinds of relatively unplanned and somewhat irrelevant con-

versation, may illustrate the second point here, namely that warmup is typically desirable. For example, the persons assigned to roles may be instructed to begin, not by launching into the problem discussion which is to be their main business, but by talking about the physical setting ("this is the front door") or about their own role origins ("I am 40 years old and have lived in Brooklyn all my life"), and so on. The players may relax and fit into their roles the better for this, while at the same time the atmosphere for the playlet is being built in the minds of the audience.

► The next process in role playing, the action itself, should be started by some kind of signal from the director, or by an initiating remark from some person whose assigned role permits or requires him to get the action under way (a person playing any sort of leader role may perhaps be assigned this responsibility). The moment of beginning the major action should be clear to all, if only to avoid having some thoroughly irrelevant remark detract from the main part of the playlet. The principal concern about the action, for present purposes, is with how long it should run. Brevity is desirable, as we have indicated before. Sometimes role interactions bring themselves to an early close, as at the termination of an interview; sometimes the drift of a scene becomes apparent and it can be interrupted without playing it all the way out; sometimes the players exhibit a blockage of some kind and the play itself peters out; and sometimes, without waiting for a clear termination point or pause, it is desirable for the director simply to stop the play because the quantity of action is right for useful analysis.

► The process of analysis is of course what makes role playing of general pedagogical use. It commonly starts by the instructor's asking the players for reactions to their own roles and the roles of others. Their expressions of feeling and their analysis of what was going on between persons or roles set the tone for audience participation in the analysis. Furthermore, the ability of the actors to analyze their actions in their own roles, or the action of others, helps to stress the objectivity and the avoidance of judgment of persons which are so essential to undistracted analysis of the problem. All evaluation of acting ability or convincingness in roles is to be avoided. More directly, the analysis of roles should always bear upon what this analysis contributes to solution of the problem at hand (e.g., an understanding of why the Negro

parent or the white principal performed as he did in his role is relevant to understanding the relationship between them and therefore to the broader problems of desegregation). It is also essential that the analysis of action make clear the individual differences among people and their reactions, both within the playlet and between those playing the roles and those observing. Sensitivity to even small individual differences in feeling, attitude, or knowledge should be stressed. While the analysis typically proceeds as a class discussion with the instructor involved, it should be noted that for pedagogical purposes the whole role playing technique should be used in a context of information secured from additional sources such as reading materials and lectures. And as a variant on the classroom discussion, the instructor may require each student player or member of the audience to prepare a written reaction to the playlet.

The role playing process as we have described it may be given a wide variation in forms and uses. For example, very often it is useful to follow the analysis as just discussed with a replaying of the situation, by the same persons in the same roles, by the same persons in exchanged or reversed roles (to get the feeling of, for example, the opposite side of the segregation boundary or the interviewer's desk), or by another group of players. In this way the different backgrounds of experience, different structurings of the same basic situation, the availability of different amounts of relevant information, or even variations in player personalities, may affect the behavioral material which comes out in the action and the analysis. Other variations on role playing, particularly in adapting it for use in large groups, are described by Maier (7); by ingenious procedural measures he is able to involve whole audiences in subgroup role plays, or, by a sort of remote control, in a single playlet.

WHETHER TO USE ROLE PLAY

Although role play has been found, at least by those mainly successful practitioners who write about it, to be a novel, interest arousing, and illuminating technique, like any other technique it must be used under appropriate circumstances. It is suggested, for example, that best results are obtained in a relatively small group, where the feeling of involvement of both cast and audience is great, where all can participate in the analysis of the action, and, possibly, where responsibility for taking roles is rotated so that an atmosphere

of being in it together, with the consequent de-personalization of role taking itself, is achieved (2, 4). Others have attempted to use role playing, sometimes by especially practiced groups, before very large classes.

Those who use the technique agree that it is expensive of time and energy, not merely for the instructor but also for the class; role playing should therefore be used only when the returns promise to justify the costs. One teacher whom I know has used the technique effectively but nevertheless has dropped it because it required more time than he could afford for outside preparation of situation and cast.

Evidently also (1, 2), not everyone can successfully direct role plays or capitalize on the analysis. A relatively great amount of flexibility and adaptability is required, in order to cope with what may come out in the play, and both imaginativeness and realism are required in working out the situations and roles that will make for understanding of the chosen problem. Those of us who still are not very confident of our classroom skill may do well to avoid the technique, as will those who value an orderly and systematic presentation of information, here to be contrasted with the less predictable, less controlled, more spasmodic character of progress toward understanding which may evolve during and after role playing.

Certain other limitations on the use of the technique have been suggested. Zander (8), for example, found that there was some tendency for show-offs to interfere with successful use of role play by their readiness to volunteer. This can be avoided to a large extent by using in the cast only individuals about whom something is known, or by using role playing only in groups where such a problem can be expected to be minimal (e.g., where there are presumably no strong tendencies for aggressive sideplay against the role taking idea by persons who accept roles). It must also be anticipated that sometimes a cast will produce a play which is simply colorless or nonarousing,

perhaps because of the line their action happened to take or perhaps because they themselves are constricted rather than spontaneous in their lines. Another problem arises in the fact that only simple and brief situations may be used for role playing; compensation for this may be found in the fact that even simple situations, as the psychologist encounters them, contain complex material and may be illustrative of key points in the most complex of problems. Finally, it has been suggested (2) that the conventional 50-minute class period is overly brief for effective use of role playing. Experience suggests that half or more of such a period is spent preparing and staging the play, a little more in the action itself, and then, just as discussion gets going, the period ends. With more experience, of course, both instructor and class can be more efficient in the use of time.

Perhaps the most important consideration with respect to role playing is that the more it can be related to understanding or mastering some problem which bears meaningfully on achievement of recognized course objectives the more useful it should be. Problems, action, and analysis must all be constantly seen in this light. When the experienced instructor can so utilize the technique, and at the right place in his course, the motivational effects appear to be very favorable, as are the increases in basic understanding of behavior. Of its motivational or interest value there seems to be little doubt.

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Each Moment of the Year

"To the attentive eye, each moment of the year has its own beauty, and in the same field it beholds, every hour, a picture which was never seen before, and which shall never be seen again."

EMERSON: *Nature*

Measuring Teaching Performance

The following article is an adaptation and condensation of an article in the AMERICAN JOURNAL OF PHYSICS (April 1956) presented by kind permission of the author and the publisher. The author (B.S., Case; M.S., Massachusetts Institute of Technology; Ph.D., Minnesota) is dean of the graduate school at Case Institute of Technology and a distinguished contributor in research, publication, and education.

By ELMER HUTCHISSON

THE measurement of professional performance has been tackled by several professional groups. The American Management Association, for example, is very conscious of the need for measurement in the management field. Much has been written during the past few years on the skills of effective management. Like good teaching, good management is inextricably intermeshed with human emotions and human values. Since there seems to be pretty common agreement that some progress is being made in understanding management, perhaps application of similar analysis in the teaching field will also be productive.

Most students of management divide the skills of management into some four to six broad classifications: (1) planning and establishing objectives; (2) organizing manpower, work, and time; (3) communicating ideas; (4) measuring and interpreting performance; and (5) control, i.e., feeding back intelligence to correct the activity if necessary, and to bring it more nearly into accord with the objectives set.

Can teaching skills be classified in a similar manner? With the hope that they can and that such a classification will aid in understanding we will explore this analysis further. I will restrict myself to physics teaching, although I am sure that whatever is said applies also to teaching in other subjects.

PLANNING AND ESTABLISHING OBJECTIVES

Following the classification suggested in the preceding and applying it to teaching, our first task is to seek to establish objectives. If one is not sure of one's objectives, it is indeed difficult to tell whether or not one is doing a good job and far more difficult to set a clear program for improving one's teaching. As I see it, in an ele-

mentary course in physics, we attempt to assist the student:

1. To identify and understand clearly a few general laws of nature and to learn to apply them to specific illustrative situations.
2. To understand the need for broad generalizations, if our knowledge of nature is to be put into sufficiently compact form so that our limited mental capacities can assimilate it.
3. To learn something of the history of ideas and the contribution of physics to modern civilization.
4. To develop an appreciation of the need for precise measurements and for knowledge of the degree of this precision.
5. To acquire a skill with instruments, wires, and perhaps even "sealing wax."
6. To learn a body of facts and figures which for reasons of efficiency, if for nothing else, we should have at our fingertips.

Different teachers of physics would give different weightings for what is supposed to be the same course, and a single teacher would give different weightings for courses designed for different types of students. With this variety of objectives and weightings we should not be surprised that we sometimes find both our students and our colleagues baffled by our teaching. One of the less-severe criticisms of science teaching made by Professor Jacques Barzun in his provocative book *Teacher in America*¹ is, "There is seldom any consideration of the students as thinking minds, of the proper allocation of effort among the many interests legitimate at their time of life, nor of the philosophical implications which the words, the history, and the processes of the particular science disclose."

Let me propose as one step in a program to improve physics teaching that a representative group of physics teachers get together to determine first, what are the objectives of the various types of beginning courses offered and, second, how much agreement is there on the objectives. In other words, let us determine the weightings in the following expressions:

$$\text{Goal in Course A} = W_{A1}O_1 + W_{A2}O_2 + W_{A3}O_3 - \dots, \quad (1)$$

$$\text{Goal in Course B} = W_{B1}O_1 + W_{B2}O_2 + W_{B3}O_3 - \dots \text{etc.}, \quad (2)$$

where the objectives are listed as O_1, O_2, O_3 , etc., and the weightings are " W_{A1}, W_{A2}, W_{A3} , etc."

It is quite likely that if the objectives which

¹ Jacques Barzun, *Teacher in America*. Boston: Little Brown and Company, 1945. Page 94.

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MEASURING TEACHING PERFORMANCE

I have listed above are used and considered in the order given, W_{A1} and W_{A4} would be large for a course A in physics for pre-engineering students and that W_{B2} and W_{B3} would be large for a course B for liberal arts students. A recognition of possible different weightings for courses offered to different groups of students seems to me a far more sensible approach than that contained in the often expressed philosophy that "physics is physics" and that all students should be taught the same material in exactly the same way.

MANPOWER, SUBJECT MATTER, AND TIME

Once our objectives are agreed upon, it may be fruitful to consider the various ways in which manpower, physical facilities, subject matter, and time may best be organized to accomplish the given objectives.

Let us consider first the human components involved in the teaching and learning process. Little is actually known about the organization which is best suited for learning. Two diametrically opposed organizations of teacher and students are often used. The straight lecture is one type in which the communication is unidirectional between the teacher who in "group dynamics" terminology is the leader of the group and the students. There is no communication between the individual students (that is, if the teacher has his way!). In contrast to this method, the "Great Books" movement has made popular a learning process in which the leader is completely subordinated within the group and the entire emphasis is on the maximum communication or participation of one student with another. The so-called "case method" of teaching which is often used in the business administration fields depends to a great extent upon this type of class organization. Since there is usually no single correct answer to the problems under discussion in such a class, the teacher is not expected to take an authoritarian type of role; instead he merely keeps the discussion moving and encourages as much participation as possible by members of the class.

Quite apart from the general question of the organizational structure of the group is the type of communication and the specific techniques of communication to be used in teaching. How important are demonstrations in a physics lecture? How important is laboratory work where the emphasis is usually placed strongly on student participation? Questions such as the fraction of time to be devoted to lecture, recitation, and laboratory are usually settled by tradition or in a

purely arbitrary manner. Furthermore, we know very little about how many students can be taught effectively at one time by a given lecturer. Many other similar rather fundamental questions can be asked but certainly cannot be answered reliably, if at all.

Another matter of organization which is usually set more or less by tradition is that of the arrangement of the subject matter itself. Good teaching would suggest that we should grade the material very carefully, putting most easily learned concepts first and the more difficult matters later.

The organization of time is another matter of concern. What is the most effective length of the teaching period? Should a class meet for only one hour? How long an assignment should be made each day? Do we know whether a short assignment and a class meeting once a day is better or worse than a long assignment and a class meeting at longer intervals? How much time should the student spend in preparation as compared to the time spent in class? If we are to have the most rapid learning and if we are to use our limited teaching manpower effectively, should we not know something at least about the answers to these questions? Perhaps we in the subject are not taking adequate responsibility in helping to direct educational research into fruitful channels.

COMMUNICATING IDEAS

The teacher is the driving force in the educational process. He has many ways of communicating his ideas to the student. He may use his voice, blackboard writing, demonstration experiments, or he may use some form of graphic art. Good organization and resulting clarity of presentation are also characteristic of a good teacher. To a large extent, these qualities depend upon the time devoted to preparation and upon the experience of the teacher. Their relationship to good teaching is not altogether clear. It is quite possible that effortless absorption of ideas on the part of the student may not contribute so much to his lasting learning as when he is required to make a considerable personal effort to understand the material being taught. As suggested earlier, emphasis should be on the creation of a desire on the part of the student rather than the mere explanation of facts and principles, however lucid.

Much has been said and written of the force, vigor, and self-confidence which enter into good teaching. A good teacher seems to know when to be positive and when to express ignorance, either real or feigned. These are intangibles that go to

make up the far more intangible quality called "inspiration." These qualities seem to defy measurement and yet they do much to separate the good from the mediocre teacher.

There are, however, other qualities that can be measured. For example, should not our physicist teacher, when lecturing, measure the sound level at the student's ear and make sure that the level is adequate? If it is not, there is no excuse for the teacher not using a high-fidelity amplifying system to reinforce his voice. Likewise, if our teacher is using lecture demonstrations or writing on the blackboard, is the illumination adequate? Can the demonstrations be seen? Has he tried to read his own writing from the student's seat? Many teachers use lantern slides or charts. Actually, there can be little excuse for lettering on a slide so small it can't be read or for lack of contrast because of poor exposure or development, or for lines out of focus or uneven illumination on the screen.

Students are being conditioned by picture magazines, movies, and television to depend more and more upon the graphic arts as an aid in receiving and expressing ideas. Psychologists are learning that color, nature of the design, and balance often create an emotional response that may well overbalance the strictly informational content of a slide or chart. We have as much right to expect that a good teacher will keep abreast of these tools of communication as we have for a good research physicist to keep abreast of new instruments for research.

With respect to the student, there are some factors over which the teacher has some control and others that are completely outside his control. We will assume here, *a priori*, that the student has, at least, some inner desire to learn, gets adequate food and sleep, and is in good health.

Good communication depends not only upon the force of the teacher and the keenness of the student, but also upon their personal interactions. Assuming, for simplicity, only linear relationships and something akin to an Ohm's law for the learning process, we may write the following:

$$\text{Learning Rate} = \frac{k \cdot \text{Teaching Effectiveness}}{(\text{Resistance to Learning}) \text{ Native} + (\text{Resistance}) \text{ Induced}} \quad (3)$$

In this equation k is a proportionality factor which will have the units necessary to balance

the equation and will include the dependence upon the many environmental factors such as loudness and illumination levels, temperature of the room, ventilation, etc.

The concept of a resistance to learning has been used in many textbooks on educational psychology but usually in a purely qualitative sense. It seems clear that low resistance goes with high intelligence and high resistance with low intelligence. However, the exact nature of this relationship is far from clear. The most commonly used measure of intelligence is the AGCT score. For students in college the great majority have scores between 80 and 160. Thus except for students with a genius rating, the ratio of the highest score to the lowest is of the order of 2 to 1. I would judge from experience that students generally vary in their native learning rates over a somewhat greater range, say 4 to 1 or higher. In a first approximation, therefore, we might introduce the inverse square of the AGCT score as a resistance factor to obtain a rough measure of the dependence of learning rate upon native intelligence. There are good arguments for using a more specialized aptitude test but since such tests are not nearly as well standardized as the AGCT, I will avoid them in this discussion.

The induced resistance resulting from the interaction of the teacher and student is just as real as that native to the student but very much more difficult to determine or to measure. Since it resembles a real resistance or impedance, I have included it as a resistance term in the denominator in Eq. (3). It may be positive or negative. Thus it may make it much more difficult for a bright student to learn or it may enable an ordinary student to perform far better than that which one expects of him. The two resistance terms seem to be of the same order of magnitude. Ward Darley² suggests as examples of this induced resistance the hostility which often builds up in medical students who find it very difficult to finance their long medical educational program, the uncertainty of students concerning the draft, and even the hostility which often builds up in certain students and seems to be directed toward a particular teacher. It is this induced resistance which is particularly the problem of college personnel counselors.³ The second resistance term

² Ward Darley, Presidential Address to the Association of American Medical Colleges, October, 1953.

³ A rather complete survey of problems in this area was given under the title, "Clinical Counseling and Academic Achievement," by John V. Gilmore at the convention of the American Personnel and Guidance Association at Chicago, March 30, 1953.

probably should include also the concept of motivation and the providing of incentives. The business man has been far more effective in studying the effect of incentives on accomplishment than the educator.⁴ A review of these plans seeking application of them in education might prove to be very fruitful.

MEASURING AND INTERPRETING PERFORMANCE

The most direct measurements in the teaching profession are the grades given. There is not, however, universal agreement as to the purpose of grades or for that matter what exactly is measured by grades. Some teachers use grades as student incentives. Others use them to give the student a sense of accomplishment and others merely to rank the students for passing and selection purposes (or possibly just because registrars require them).

Let us look for a minute at what the grades grade. Most tests are a measure of the knowledge which the student has at a given time and which may be related to other factors as follows:

$$\text{Knowledge}_t = \text{Knowledge}_0$$

$$+ \int_0^t \text{Learning Rate} \cdot dt, \quad (4)$$

where 0 is the time at the start of the course or the period being considered and t is some time later. Knowledge_t may well be one of the goals referred to in Eqs. (1) and (2). If this is the case, many of the tests now given may be discarded since most tests unfortunately are only vaguely related to the goals of the course. I have in mind, for example, that our goal may be to learn a few general principles, but correct answers to the questions on the tests may depend primarily on algebraic, manipulative, or arithmetical skill. In fact, the scores obtained often may reflect more the quality of the tests than the knowledge which the student has gained.

Fundamentally, it seems to me we should be attempting to measure the learning rate and to use it not so much as a measure of the student's performance but as that of the teacher's. If we accept this, we must first take account of what is known at the beginning of the course [Knowledge_0 in Eq. (4)] by a test or other device at the beginning of the course. Once this initial knowledge is known then we should try to separate out the student's resistance to learning [Eq. (3)] by independent intelligence tests and any other avail-

able measure so that we have left something akin to teaching effectiveness.

CONTROL

A characteristic of good management is that those responsible cannot be satisfied with a better understanding of the type of organization needed to accomplish a given purpose, or of the best way to provide adequate communication or even of how measurements may be made. Their constant question must be, "What can I do about it?" "How can the information obtained be used to approach closer to the primary goals which have been set?" Thus, continuing our comparison of skills of teaching with the skills of management we must ask, "How can we set up constructive programs which will lead to action—in this case to the improvement of teaching effectiveness?" Let me summarize those where some degree of measurement seems feasible and see what action can be taken: (1) The weightings of various possible partial *objectives* for any given course may be set in a reasonably precise manner and thus give us definite goals at which to aim in our teaching. (2) Some quantities in *organization* problems seem susceptible to measurement. (3) A great many measurable factors may influence *communication* between teacher and student—temperature of the room, ventilation, sound level, illumination, graphic aids. (4) An attempt was made to separate the *teacher's own effectiveness* from the many variables involved. If we measure under controlled conditions increments in knowledge rather than absolute values, and if we factor out the learning resistance of the individual students, then we will have a quantity which will be a function of the teacher's own effectiveness. These calculations are not easily made, but with modern data-processing equipment possible.

Many of the suggestions proposed here require group action and as such provide excellent program material for regional and national associations concerned with the improvement of teaching. Where there's a will, there's a way.

CONCLUSION

How in the final analysis does all this improve teaching? First, by giving teachers some guidance as to the factors that affect teaching, and second, by adding zest to good teaching and to improving teaching performance. It will probably never make great teachers but may increase appreciably the number of reasonably good teachers.

⁴ See, for example, the summary in *Business Week* on "Motivation," August 14, 21, and 28 (1954).

On Teaching Science Teachers to Teach

Ways to help college and university teachers to be better teachers are here suggested. The author (B.S., California Institute of Technology; M. Eng., Ph.D., Yale) is assistant professor of electrical engineering at the University of California. Written first for engineering readers, the article is presented with the consent of the Journal of Engineering Education. By request the American Journal of Physics also will publish this article.

By CHARLES SÜSSKIND

THE YOUNG COLLEGE SCIENCE TEACHER, even though he be that *rara avis* who attends all meetings of his professional society faithfully, participates actively in the discussions at the meetings, and reads every copy of his society's journals from cover to cover, is nevertheless struck by the dearth of information and guidance on the one subject that should be uppermost in his mind: What must he do to become a more effective teacher? He has heard that teaching is an art, and not a science; for the rest, he might have seen a booklet published a few years ago,¹ which contains some extremely useful hints (particularly with regard to the purely mechanical aspects of classroom presentation and allied problems), or some similar monograph—and then he is on his own. He might ask his elders, with engaging naïveté, whether there is anything to be learned about college teaching from the professional “educationists”—the professors at the nearest School of Education, which is often on the same campus. He will quickly find that the estimate of these worthies in the eyes of most other college professors runs the gamut from “harmless” to “useless”; he might possibly hear the witticism in which a famous teachers’ college is maligned as the place where artificial pearls are cast before real swine. Even if his mentors are seriously inclined and well-read men who are up on the latest in the world of education, they will more likely than not refer our neophyte to the works of Dr. Bestor,² chuckling reminiscently at the way the good doctor lights into the said edu-

cationists. By now, the young college teacher is thoroughly mystified, and is beginning to wish that a formal course of instruction in the methods of teaching had been part of his graduate curriculum.

He need not feel lonely, at any rate: new college teachers in all academic disciplines are, with a few exceptions, in the same boat. Nor is the situation a new one. In his inaugural oration as first president of Johns Hopkins University in 1876, Daniel Coit Gilman expressed the pious hope that graduate schools would help to develop the teaching ability of future professors. This hope has remained largely unfulfilled to date. More recently, the President's Commission on Higher Education has bewailed the fact that college teaching is the only major learned profession for which there does not exist a well-defined program of preparation directed toward developing the skills which it is essential for the practitioner to possess.” By and large, the colleges agree that something ought to be done. The University of Chicago's Committee on Preparation of Teachers, in tabulating responses from 363 collegiate institutions, reported³ that “the large majority of the respondents believe that definite instruction in the art of teaching ought to be given as part of the graduate program of the prospective college teacher.” Still more recent investigations, such as those carried out under grants from the Ford Foundation's Fund for the Advancement of Education, echo these sentiments.

The professional scientific societies constitute effective organizations that could initiate, and perhaps even help to implement, such a program. In helping to establish it at the various colleges, the societies might well begin by pointing out that certain elements of the program are already in existence at virtually all institutions in which graduate students participate in instruction. Here are some of the elements, listed in the probable order of frequency of occurrence:

- Supervision of laboratory instruction. In the majority of colleges, a senior faculty member is in charge of the laboratory, and is frequently present during at least part of the laboratory period.
- Regularly scheduled conferences between graduate assistants and senior faculty members. Such conferences, whether formal or informal, provide an excellent opportunity for the prospective teacher to ask questions

¹ Morris, F. C., *Effective Teaching*. New York: McGraw-Hill Book Co. 1950.

² Bestor, A. E., *Educational Wastelands: The Retreat from Learning in Our Public Schools*. Urbana: University of Illinois Press, 1953.

³ *The Restoration of Learning: A Program for Redeeming the Unfulfilled Promise of American Education*. New York: A. Knopf, 1955.

⁴ Report of the President's Commission on Higher Education, 1947, Vol. 4, p. 16.

⁵ Kelly, F. J., *Toward Better College Teaching*. Washington: Federal Security Agency, Office of Education, Bulletin No. 53, 1950, pp. 11-13.

about the techniques and methods of his chosen profession, subject only to the senior man's ability and willingness to give the answers.

- Supervision of recitation periods and of classroom instruction. This element is found more rarely; its absence is in most cases due to indolence, but often also to genuinely felt distaste (largely unjustified) of anything that smacks of interference with academic freedom. Needless to say, the presence of a senior faculty member in the classroom is sure to affect the performance of the lecturer under scrutiny—either adversely or beneficially—and the monitor must learn to allow for the perturbation that he causes merely by being there. A frank critique after the lecture cannot prove to be anything but helpful, especially if the advice is administered tactfully and mingled with praise; nothing will perk up a beginner like a pat on the back.
- A teaching seminar, for the discussion of teaching methods and allied topics. Only a handful of colleges have anything like it; where such a scheme exists, it depends almost entirely on the initiative and enthusiasm of the younger faculty members, who must take time out from research and from teaching and other duties to participate. Nevertheless, this is a very useful method of introducing the importance of the subject to future teachers, and of making them learn something about their profession.
- A formal course, with provisions for presentation before a group for criticism, and for discussion of the theory and practice of teaching, as described below. It is the writer's firm conviction that this is the most effective way to improve the teaching skills of the large body of new instructors who are turned loose on our college population each year.

The above schemes might be considered as forming a five-step ladder, with each successive step encompassing most of the features of the step below. To develop the teaching abilities of future professors, every institution engaged in graduate instruction should strive to climb this ladder step by step. The more vigorous might even find it possible to take it two steps at a time.

The top of the ladder, then, is a graduate course, to be assigned fully as much credit as most other graduate courses, with perhaps two meetings a week, conducted by a senior faculty member (or a committee made up of the members of several faculties), quite probably *not* from the School of Education. The course might be required of all graduate assistants participating in the teaching program, and strongly recommended for all doctoral candidates who do not fall into this category but propose to make teaching their career. New faculty appointees with the rank of Assistant Professor and below who did not themselves go through such a course when they were graduate students might be required to participate even on the post-doctoral level. Simulation of lecture-room conditions would be an important concomitant of such a course, and each participant would be asked to "perform" repeatedly and to permit his performance to be criticized and evaluated by his fellow-students and faculty supervisors.

Such an endeavor need not be restricted to the science departments alone, even though it may originate there, to the greater glory of the science

faculty. At the institution which has probably climbed higher than any other on this particular ladder, Oregon State College, the participants in a graduate seminar on teaching procedures (initiated by the late Professor L. Friedman (chemist) and carried on by Professors F. M. Beer (biologist) and W. H. Slabaugh (chemist) have been students from various departments, accompanied by a professor from each department. The response to this scheme has been most enthusiastic,⁵ with participating faculty members returning time and again, even when they were not required to do so. It is obvious that the benefits to be derived from a discussion between prospective teachers of, say, mathematics, history, and physics are likely to be greater than those derived from the efforts of a group made up of physicists exclusively. The Graduate School of Oregon State College has actually gone a step further, by establishing a minor in College and University Teaching that allows prospective college teachers to concentrate on learning the externals of their profession to an unprecedented extent.⁶

Another possible outgrowth of the wholesale adoption of a course on teaching procedures might be the successful establishment of annual summer courses or workshops for college teachers. At present, no effective means for disseminating the knowledge gained at such summer workshops exists in most institutions; the proposed scheme would provide a convenient outlet.

The establishment of a formal course on teaching procedures might also have some indirect beneficial effects on over-all college administration. For instance, such a course would provide a more reliable means of evaluating the teaching performance of prospective instructors and new faculty members. As anyone who has ever tried to recommend a man for a teaching position must surely know, it is usually extremely difficult to say more about him than that "he is an excellent research worker and has an agreeable personality." Contact during a formal course and close supervision would tend to make an exact evaluation of the candidate's teaching ability much easier.

Another important advantage from the point of view of the department chairman, who is hard pressed to find good teaching assistants in the face of the increasing number of opportunities for

⁵ Friedman, Leo., "A Seminar on Teaching, Procedure," *Improving College and University Teaching*, February 1953, p. 13.

⁶ Hansen, H. P., "The Graduate Minor in College Teaching at Oregon State College," *Educational Record*, July 1953, p. 278.

government-contract-sponsored research assistantships and other fellowships and scholarships, would be that a formal course for teaching assistants (with credit) may make their lot seem more attractive. To be sure, most institutions have rules against students receiving pay and credit for one and the same endeavor, and rightly so. Any attempt to give course credit to all teaching assistants without asking them to participate in an actual course, with regular meetings and outside assignments, would reduce the proposed scheme to an empty form, and might do more harm than good. Another danger is that such a course could degenerate into a mere discussion

of forthcoming classroom or laboratory assignments; this fault could be most easily avoided by striving to keep the participation as diverse as possible, with students and faculty members from several departments taking part, as suggested above.

To those who would object because they would find it next to impossible to add yet another course to the ever-expanding curriculum, we may offer the consolation that the proposed course is fully in line with the trend toward less specialized and more basic courses—for what is more basic for a college teacher than the ability to teach?

The Teacher's Art

"The manner in which the instructor handles the material of the course and relates himself to the students lies peculiarly in the realm of art. It depends largely upon the individual skill of the teacher. We do not believe it is possible to define or precisely to formulate how any instructor should relate himself to the content of the course or the members of the class. The class situations must be met as they arise, from day to day and from moment to moment. The direction a discussion is going to take can hardly be foretold. The imagination, sensitivity, and alertness of instructor and students, as they play on each other, and on the material, affects the relationship in ways too subtle to be expressed adequately by lame language."

—NATHANIEL CANTOR, *The Dynamics of Learning*.
Buffalo, New York: Foster & Stewart. 1946. Pages 96-97.

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Teaching Literature for General Education



Certain principles and techniques that may be pertinent to general education and to other programs as well are considered by an assistant professor of humanities (A.B., M.A., Ph.D., Yale) at Michigan State University. He tries to find the most effective place in present day college education for literature.

By **KARL F. THOMPSON**

THERE ARE, I suppose, few of us now engaged in teaching who do not recall the dismay we felt when, young and eager for knowledge, we examined the course offerings of alma mater and found presented in her name not a straight way to learning but a labyrinth called "area distribution." We were solemnly advised that, if we were to become learned, we had to choose one course each from several "areas" or "groups." Beneath the verbiage lay the simple injunction: take one course in English, one in science, one in a foreign language, one in history, and if you haven't had enough math, take College Algebra now. Although the builders of these educational labyrinths were inspired by the worthy motive of providing the student with an acquaintance with several "disciplines" and, at the same time, permitting him a free choice (thus countering the unpleasant connotation of "disciplines"), the result was generally to deny the student access to many fields of knowledge. If the student, for instance, wanted to take philosophy and literature and history, he was barred from one of these because he could take only two courses in any one area, and so on. Or if he wanted to know something about physics and chemistry and biology, he could again take only one—or wait until he had a chance in Junior year to grasp an elective. The "distribution requirement" actually forbade his imbibing more than teaspoonfuls from the springs of knowledge.

The basic fault of the area requirement scheme for the first two years of college was its artificial compartmentalization of knowledge. In this it unwittingly adopted the same fallacy that has beset education since the time of the *trivium* and *quadrivium*, the ancient incubus of a divisive theory of education. From medieval times on education has suffered from the ravages of the bellum intestinum in which the realization that knowledge is one has been pitted against the belief that knowledge can be divided into disci-

plines. In practice, the former belief has had only lip service, and the latter, rather than being properly regarded as an expedient merely, has been followed as the true faith. It is time, according to those who believe in General Education, to restate the fact that learning springs from one source, not many. With this as the first article of faith, the division of knowledge into courses or disciplines may be tolerated for what it is, in the same way that the academic quadrennium is accepted for the sake of expediency.

The problem, then, is how to keep this expediency within bounds, how to keep it from becoming the end in itself that it has often managed to make of itself. A case in point is the question of what to do with literature, the subject most often required (usually under the label of Freshman English or Sophomore Survey) in the area system. We must begin by asserting that an acquaintance with literature is obligatory if General Education is to succeed in demonstrating to students what it is to be a human being.

In General Education programs literature is usually incorporated in humanities courses, organized either historically or according to subject matter, that also include philosophy, art, music, and religion. Of the two types of organization the historical is the better option for literature, for it sets literature free to operate as it should. As the successive cultures that have been parts of the making of modern man are presented to the student, literature is seen in the ambiance of the ideas and ideals it embodies and transmits. It becomes a part of that culture. The student who encounters *Oedipus the King* as part of his investigation of the Hellenic world brings to his reading of the play some knowledge of Greek philosophy, art, and religion; his reading of the play in turn illuminates the other aspects of Greek culture. Or, to take an equally compelling example, when a student comes to the reading of *Paradise Lost*, he knows something of the original doctrines of Christianity and its Protestant formulations. Compare this with what happens in the survey course of the area system where a fifteen-minute pause is made in the dash through the centuries so that the student can be informed on the doctrines of original sin and redemption, thus being enabled to "understand" Milton's epic.

I should not be content, however, with the treatment of literature as merely an expression of this or that era—an interesting specimen, perhaps beautifully moving, but an artifact of an age long dead. Literature by its very nature refuses to remain in a museum. It insists on aiding us achieve the greater aim of making our western cultural tradition really live, for it makes the past affective. It is the rare student who does not react to *Oedipus* (despite long years of conditioning against literature in the American culture in which plays like this are stigmatized as school-work, or at best, as permissible for leisure time if there is nothing better or more important available), and in his reaction he is subject to the true influence of Greek thought. It operates upon him directly and thus breaks through standard formulae such as “measure, moderation, and control” which otherwise might be his summary of Hellenic civilization—readily memorized for purposes of passing course examinations. Literature confers this happy benefit that a student’s mind, exercised to some degree by reading and talking about the *Iliad* or *King Lear* or *Death of a Salesman*, for example, will never altogether return to its former flaccidity. As I see it General Education can be our best hope of preserving literature as an integral part of higher education.

GRANTED that this use of literature is impossible of perfect achievement, the varying susceptibilities and capabilities of students (and instructors) being what they are, the most important aid to whatever attainment we can hope for is the teacher’s awareness of what literature *does* and his willingness to avoid embroilment in questions of what it *is*. Literature has to do with states of becoming, not being. Thus, definitions are of secondary importance, and the historical divisions of literature by such debatable terms as classical and romantic should be for the sake of convenience. Unfortunately, these terms have become dominant orthodoxies, whereas their real use is to serve as comments on the varying emphases on style and content in different ages. Above all, the teacher must avoid in the classroom the imposition of all-embracing theories of literature like the universal irony and tension of Brooks and Warren or the subtleties of the Empsonian ambiguities. Such critical theories belong by right in the teacher’s study or in other courses where upperclassmen or graduate students can sharpen their dialectic teeth by gnawing the bones of critical discriminations. In short,

our teacher of literature must be, like our master Aristotle, a describer not a prescriber.

It goes without saying that the teacher who resists prescribing what literature is and concentrates on what it does will avoid paraphrasing a book, poem, or play and lead his students along the more refreshing paths of discussion of the human values revealed in the actions and motives of the characters portrayed. We must keep in mind here the fact that the poet, novelist, or dramatist works with the same raw material that the psychologist and sociologist examine, that is, human nature. The student will be helped if this is made so clear to him that he can see the difference between a psychologist’s case history, which is human nature at second hand, drawn, dissected, and as lifeless as an insect sprawling on a pin, and the play that lets us see a Lear storm-driven to madness by his discovery of what debasement man can suffer.

The demands upon a teacher of humanities are great, and rightly so. He must have a firm faith in the efficacy of his subject to do good in the world, and his first and greatest commandment is to believe that what he teaches, the many ponderings of fundamental truths by great men and great ages, is essential armament for the everlasting struggle against ignorance and evil. The second commandment I would have like the first: believe that literature no less than philosophy or art is a way to moral and emotional maturity. The spirit of art that confers this maturity is what we seek, for the letter alone is deadly. The instructor must keep before him always the conviction that man can no more grow to emotional maturity without art and literature than he can think without language. Nevertheless, the teacher cannot succeed by faith alone; he must be wise in the difficulties that beset him in his task. Of the two most dangerous to literature (I disregard here the hazards of college teaching common to all courses and classes, such as indifference and mistaken notions of the purpose of college education) are the students’ incredulity and their reluctance to use their imaginations. The first usually appears in the guise of a question, “Did the author really mean this?” Behind this question is the student’s unspoken suspicious incredulity: “Aren’t you just imagining this meaning in the play or poem? Aren’t you merely requiring me to say as you say?” This is a difficult question to counter, especially when the teacher wants the student to be free to see things for himself. Per-

haps an answer can be found through posing a counter question: "Isn't it odd that you don't ask of a painting or statue, 'Did the artist really intend this or that color or shape?'" Since the color or form of the plastic arts is obvious, the intention is not questioned. But the writer works not with unfamiliar media of paint or stone but with a medium that the student has, he believes, already mastered and therefore shares with the writer. Words and their connotations are, consequently, less "visible" than the novel pigments and forms. The student must be led to realize that every word, every phrase, every bit of dialogue however much like casual conversation it may sound is calculated to produce a certain effect and to help create the whole poem or play or novel. The challenge might then be directed to the student: "Would a writer like Shakespeare put this word or phrase here if it did not have some function or relevant meaning? Did he not intend everything he said just as sincerely and skillfully as Michaelangelo intended the exaggerations that impress us so in his 'Young David'?"

THE AUTHOR'S general intention being granted, we must then proceed to the clearer statement of the author's meaning in a specific passage or character. Here the student's imagination can be aroused by reminding him that, as we have noted before, the writer presents his characters and their actions to us directly. The result is that their motives are, as it were, submerged, even as they are in real life where a person's real thoughts are unspoken. The characters of fiction and drama act and tell their stories in such a way, however, that we are invited to probe for meanings in the story. The good writer makes it possible for us to discover these meanings by giving us a coherent action to study and, by employing the conventions of literature, lets us find out more about the character than that character, or any of the other characters in the drama or novel, can know. In this probing for motive and meaning in human affairs there is a positive therapeutic, maturing effect upon the individual and, consequently, upon the society which his subsequent thinking and acting influence. The act of criticism or appreciation that necessarily accompanies analyses of literature is in reality part of the creative process and, therefore, essential to the development of the creative individual. Reading and discussing literature and talking about art are not imitative activities but a heightening and intensifying of the experience which the work

of art depicts. The poem or play or picture or statue makes moral sense of experience. Finding that moral sense in company with the artist constitutes creativity on the part of the reader or viewer. We see in the work of art, if we choose to do so, the infinitely renewable moral experience uncontaminated by change and literalness. In this assertion that the poet and playwright present an eternal world of similitude or "as it were" and not a transcript of transient fact lie the means of challenging the student's imagination. He can be led to see that the fact of fiction is truer than the fact of actuality, or at least significantly different from the fact of material existence. The warrior Achilles in the *Iliad* is different from the mass of corpuscles and tissue that constituted some Achaean warrior of 1184 B.C. Willy Loman is undoubtedly different from a flesh and blood commercial traveller. We know more of Achilles and Willy Loman, of their faults, their follies, and their glories than we can ever know of an actual man. This is so because poet and playwright have put coherence into a narrative that has a morally significant beginning and end. Thus, Achilles and Willy Loman give us an insight into what it is to be a human being. This insight, it is true, may be interpreted as basely as "Man is merely a tortured ape whether he lives on the ringing plains of windy Troy or in Brooklyn." I do not agree with this view, but the point still remains that in the fictional "fact" of man's being tortured, a moral assessment is made; the reader has exercised his own humanity in making a judgment. His judgment creates a humanistic fact, really discoverable only through art and not through case histories of Bellevue ward patients.

If the instructor realizes this and if he comes to grips repeatedly with this problem in his classes; if he avoids the rote of history that leads to reciting the kinds, classes, and types of literature; if he treats literature and art as more than encapsulated "great ideas"; literature will have a chance of doing its good work in aiding the humanities maintain their rightful place in our educational system and in rescuing them from the danger of being regarded as expendable. Literature can perform this high task not in survey courses or types of literature courses that merely consolidate the artificial divisions between subjects but in a general program in which it functions in close union with history, art, and sciences — in short, with all the explorations of the nature of man and his environment.

The Goodly Fellowship

"In a sense, teaching cannot be taught since essentially it must be a flaming and an outgoing of the spirit. It is possible, however, that men and women who have succeeded as teachers can offer some guidance which will be helpful to the novice who has a latent capacity for teaching."¹

THE Professor stood at the door and watched the last guest go down the walk, pass under the street light, and then vanish in the night. As he turned back into the house, he decided to have another cup of coffee. It had been an interesting symposium they had had this evening. More to a single point than usual, too. "To thine own self be true" flashed up in his thought. That was it—thou canst not then be false to any student!

He reviewed what each person had said. With his notes before him, he recreated the evening's discussion. What single piece of good advice would you give to a young college teacher facing his classes and his teaching problems for the first time? Everyone had brought some suggestion, some bit of wisdom or testimony of experience.

ASSISTANT PROFESSOR OF SOCIOLOGY:

"I'd like to pass on to a young teacher some of the philosophy of Lin Yutang. He thinks that when age brings grace to a man he becomes less pedantic. He grows from a mere specialist into a thinker. He may nourish a sense of humor, gain a lightness and subtlety. With experience, 'all is simple, all is clear.'"

PROFESSOR OF CHEMISTRY:

"I'd recommend to a young teacher the development of a satisfying personal philosophy by bringing together the moral, ethical, and social concepts that bear upon a career consistent with the public welfare and professional integrity. The philosophy should include interest and pleasure in academic pursuits and inspiration for continued study."

PROFESSOR OF ENGLISH:

"I recommend work experience. A college teacher can help students get summer or other jobs that may help them get their bearings in college. Such jobs can be valuable for college teachers also."

ASSOCIATE PROFESSOR OF ECONOMICS:

"I'd emphasize three truths. Be prepared. Be confident, but don't offend your students by boasting. Be interested."

PROFESSOR OF ENGINEERING:

"It might encourage some young teachers to point out that it may be advantageous if the teacher himself has had a tough time in college. He can then better understand some of the problems of his students and perhaps help many of them to a smoother way than he himself found."

PROFESSOR OF HYGIENE:

"Nothing can be more important than for students to be convinced that a teacher is both competent and honest. This is the only basis on which real teaching can rest."

INSTRUCTOR IN PHARMACY:

"If a teacher has an honest interest in others, he will be able to reach his students. I should try to emphasize this strongly to any young college teacher."

ASSOCIATE PROFESSOR OF ZOOLOGY:

"In any discipline—certainly in science—a teacher must know his subject. This is the first consideration. It has many aspects. It means, for example, that a teacher must himself be a student, constantly engaged in extending his own knowledge. Students then will profit by his richer knowledge, and they will catch his spirit."

INSTRUCTOR IN ART:

"In art teaching we stress originality and creativeness. I should think that any teacher should remember that he himself is not the one who is painting the picture, but the student. Of course, if teaching is an art, the teacher is painting a picture as teacher—doing a creative job through what he gets his students to achieve. But he should not hold his students' brushes for them, or do anything for them that they must do for themselves if they are really to learn."

ASSISTANT PROFESSOR OF LANGUAGES:

"That suggestion is close to the one I would offer. We who teach skills should be freer of the temptation of many teachers to do for students what they need to do for themselves. We should

¹ Bernice Brown Cronkite, *A Handbook for College Teachers*. Cambridge, Massachusetts: Harvard University Press, 1950. Page v.

not spoon feed them. A student learns a language, if he really learns it, through effort on his own part. His teacher can only help. I'd remind any young teacher that teachers too often are the ones who do the most work, trying to get students to learn. I fear that the real learning is not in direct proportion to the teacher's efforts but to the students' efforts."

A GRADUATE STUDENT:

"I believe college teachers should commend students oftener than is common. If we see a work of art, a fine bridge, or a beautifully planned and cared for garden, we naturally say something about it. Why shouldn't a student hear a word of praise when he does a good job, makes a fine report, or shows some originality or insight? I mean praise, of course, that is sincere. Sometimes perhaps he should praise a student who is in great need of encouragement. But certainly, if the teacher really likes some performance of a student, shouldn't he just naturally say so?"

PROFESSOR OF ENGLISH:

"A young instructor, striding down the corridor, books and papers in hand, was stopped by a senior professor in the department, who inquired, 'How are things going?'"

"Well," the young man hesitated, "I was just thinking, here I am teaching in my third year and I still haven't got over feeling nervous as I go into a class."

"Fine," said the senior professor, "don't ever get over it."

PROFESSOR OF BOTANY:

"My suggestion to a young teacher perhaps is closely related to this idea of recognizing a natural nervousness as a desirable symptom of teaching quality. I suggest that of all methods and techniques a teacher may consider, perhaps those most effective for him will be the ones he can integrate with his own personality. If he attempts to use techniques not so integrated, he may make his presentation affective rather than effective. One of the best techniques is simply to be natural. A natural presentation engenders confidence which builds up those characteristics that make an instructor 'wear well.' *Be yourself!*"

INSTRUCTOR IN PHYSICS:

"Isn't it even more important that the class be so conducted that the student also can *be himself*? Understanding—at least in science—does not come by absorbing the teacher's or other knowledge. Before you answer a student's question, ask whether he should not be able to answer it for himself. If your answer is yes, cause him to reason to the answer for himself. This will be harder for you and of course for him. But the student will learn more than the answer to his original question."

TAPS—

The professor finished his coffee. It had been a fruitful evening. He thought the suggestions would help young teachers. And then he thought of all the students those young teachers would serve through the years. He snapped off the lights. But the light of an evening might illumine the life of many a student he would never see or know.

Summer Issue

The next issue, which will appear in June, will contain contributions by Paul Douglass of Rollins College, Charles I. Glicksberg of Brooklyn College, Maurice F. Freehill of Western Washington College, James H. Zant of Oklahoma A. and M. College, A. M. Withers of Virginia Polytechnic Institute, and William Charles Korfmacher of Saint Louis University. A special feature will be an article "The Socratic Method in Modern Dress" by Winslow R. Hatch, dean of the College of General Education of Boston University. This will be the first of a series of articles of unusual significance dealing with integrative teaching of biology. Editorial: "Promised Land."

Announcement of the names of a new national Editorial Advisory Board will be made in the Summer Issue.



Science for Service

COLLEGE TEACHING: A PSYCHOLOGIST'S VIEW by Claude E. Buxton. New York: Harcourt, Brace and Company. 1956. viii + 404 pp. \$3.75.

TEACHING TIPS: A GUIDE-BOOK FOR THE BEGINNING COLLEGE TEACHER by Wilbert McKeachie. Ann Arbor, Michigan: The George Wahr Publishing Co. Third Edition. 1956. 124 pp. \$1.50.

I once heard a leading psychologist say to a group of teachers: "To teach is to induce learning in students. Hence a teacher must understand how students learn. That is, he must be a good practical psychologist."

Another psychologist used to declare that you have not really learned anything until you can apply it. Supposedly then a psychologist who teaches should be a good teacher. If he is not, he must be a poor psychologist. The dictum that you never really know a thing until you teach it can have a dual meaning for psychologists.

Does every scholar have an obligation to help in the application of the knowledge that he and his fellow specialists have mined? Can not he perhaps, with his more thorough knowledge, contribute to the application as no one else can? And will he not see in a new light the knowledge he has when he has seen it in use?

Whatever we may think or say about scholars in general in respect to their concern or unconcern with the applications of their specialties, those of us who are interested in the advancement of teaching must hail with satisfaction the effort of a psychologist to contribute from his knowledge to the effectiveness of college teaching.

College Teaching: A Psychologist's View is the work of a clear thinker and a good writer. The author is chairman of the department of psychology at Yale University. His basic point of view is stated in the Preface: "What began for me as an uncommonly strong interest in teaching has gradually developed into an avocation of trying to improve college instruction."

Five of the fifteen chapters are devoted to aspects of American higher education: its development, criticisms and issues, liberal and general education, psychology in the curriculum, and the career of the college teacher. Six chapters deal with aspects of teaching: planning the introductory course, lecturing, discussion methods, group-centered teaching and case analysis, constructing course examinations, administering and grading examinations, and maintaining classroom morale. The final chapters are on advising and counseling and on students.

All these topics are handled with competence. The treatment is comprehensive and sympathetic but at the same time can be critical. An example of the way in which the author deals with a topic is provided in the article on role playing, taken from the book, which is printed on

earlier pages of this issue. The book lists nearly three hundred references, most of them recent, and provides ample evidence that the author knows them and their significance.

Certain topics might have been given better attention, especially by a psychologist, but they have not been ignored. Purpose, for example, which is basic to human behavior and to teaching and learning, gets no special treatment except in connection with other topics. Yet the author expresses clearly its importance:

The simple fact, however, as can be testified by those who have tried it, is that the statement of one's teaching objectives is a difficult exercise and, once accomplished, has a powerful effect on one's teaching.

Another topic that might loom large in a psychologist's treatment is individualization. It gets only incidental attention here and there as in the following:

One concrete suggestion, not often adopted because it means extra work for the instructor, is to permit optional papers, or examinations for extra credit, so that the student who is able and willing to do extra work clearly gets credit if it is satisfactorily or well done.

It would appear likely that a psychologist would give large and primary attention to the student and his learning since teaching centers in the student and must be measured in student behavior. It appears not quite right to find the chapter on "Knowing the Students We Teach" placed at the end of the book.

But even where we may find fault, we must be impressed by the author's liberality and urbanity. In common with college teachers generally, he probably (as author) gives too much attention to lecturing (in one of his longest chapters), but he knows the evils:

... we know that the lecture permits the student to be quite thoroughly passive, a poor condition for learning. The small group techniques, by contrast, derive their appropriateness and strength from the fact that they arouse the student and secure participation, if only from threat of being found passive and ignorant. They are less efficient for imparting information but may be directly oriented toward clarification. Because the student is active, the instructor is better informed about what should be done next, and the learning situation is likely to be more real and vivid than when the student can sit idly on the base of his spine with never a fear that learning will invade him.

This book has been written chiefly for the author's fellow psychologists. A reader who is not a psychologist will feel a sense of not belonging. I beg readers to surmount this feeling, however. This informative and timely book can be of great value to a college or university teacher of any subject. The non-psychologist will learn something worth knowing about psychology teaching. He can readily furnish the parallels in his own field.

ANOTHER psychologist has made an unpretentious but significant contribution in his *Teaching Tips* which now appears in its third edition. The book is directed to the beginning college teacher, but almost any teacher can pro-

fit from the sensible suggestions and practical information packed into this modest volume.

The author is a member of the department of psychology of the University of Michigan.

The scope is so comprehensive as to raise a question why it was not developed into a larger book, yet the very compactness is a merit. We get so much in so little space that we feel appreciative with no inclination to find fault with either content or plan.

Only two of the chapters are long. One of these is on examinations. It gives attention to test items that will measure the student's ability to apply principles as well as to remember facts. It discusses test construction, short answer, essay, true-false, and multiple choice tests, instructions to students, scoring, and returning test papers.

The other long chapter is on research in college teaching, reporting the high points of many studies and forecasting a more fruitful future:

With more adequate theory, increased empirical background, and improved measurement tools, the researcher of the next decade can walk where previous research in teaching has slowly crept.

Four chapters deal with basic aspects of teaching including preparing for a course, meeting a class for the first time, and class administration. Twelve chapters are concerned with classroom procedures.

There is a practical chapter on motivation, a portion of which appeared previously in this journal (August 1954). Two important factors in motivating students are stressed: (1) Students like to know what is expected of them and where they stand. (2) Students feel less anxious and perform better on tests if they feel that the instructor is on their side and wants them to do well.

The chapter on "Improving Your Teaching" not only gives many concrete suggestions but points out the rewards:

By focusing attention on teaching methods we can sometimes make discoveries about student needs which might have evaded us through years of worrying about them. By finding teaching methods which elicit increased interest, we may gain that approval of students which will give us enough security to build new relationships. In any case the teacher who begins to improve his teaching will again discover that teaching is fun!

Recent Books

CHILDREN AND OTHER PEOPLE: ACHIEVING MATURITY THROUGH LEARNING by Robert S. Stewart and Arthur D. Workman. Foreword by Erich Lindemann. New York: The Dryden Press. 1956. xi + 276 pp. \$2.25.

"Gives the reader just the right combination of confidence and humility for tackling emotional and personality problems." College teachers who read the sections on adolescence and adults may readily be led to read more; every human being is concerned with problems of maturation.

COLLEGE FRESHMEN SPEAK OUT by Agatha Townsends. Foreword by Burton P. Fowler. New York: Harper & Brothers. 1956. x + 136 pp. \$2.50.

Outspoken comments of 470 freshmen from 27 colleges "reveal an amazing combination of approval and disapproval of their college experience." Both high school and college teachers should find here plenty of challenge, and there also are suggestions to future freshmen.

DICTIONARY OF LATIN LITERATURE by James H. Mantinband. New York: Philosophical Library. 1956. vi + 303 pp. \$7.50.

Covers classical and medieval Latin literature—three thousand brief articles concisely presented for ready reference.

EDUCATION IN THE U. S. A.: A COMPARATIVE STUDY by W. Kenneth Richmond. New York: Philosophical Library, Inc. 1956. 227 pp. \$4.50.

De Tocqueville said that "there are certain truths which the Americans can learn from a stranger." This book by a distinguished Englishman finds the educational revolution in the United States "full of signs and portents," sees plenty evidence of vitality, and prophesies that "The Jacksonian lion and the Jeffersonian lamb will lie down together and, though their natures are so opposed, agree."

ENCYCLOPEDIA OF MORALS edited by Vergilius Ferm. New York: Philosophical Library. 1956. x + 682 pp. \$10.00.

Fifty-two scholars have contributed to this excellently presented and inclusive treatment, including theory, samples of moral behavior, and codes of indigenous and non-historical people from remote corners of the globe.

IMPROVEMENT OF TEACHING: A TWO-FOLD APPROACH by Noble Lee Garrison. New York: The Dryden Press. 1955. x + 561 pp. \$4.50.

"Teaching should guide (1) the achievement of learning goals and (2) cooperative procedures. These two aspects of method are encountered in any classroom activity." Point of view is elementary education, but the college teacher with translating ability can glean values here.

PHILOSOPHIES OF EDUCATION IN CULTURAL PERSPECTIVE by Theodore Brameld. New York: The Dryden Press. 1955. xvii + 446 pp. \$4.50.

After a well written sketch of what philosophy is, three philosophies are presented as "powerful interpretations of and programs for the culture." "To judge each in turn as patiently as possible and only then to choose, modify, or to reject becomes a personal and professional responsibility of the highest order." This book already is in its second printing.

READING ADVENTURES FOR ADULTS by Paul Leedy. New York: McGraw-Hill Book Company, Inc. 1956. viii + 456 pp. \$4.50.

College and university teachers can make many kinds of uses of this timely and excellent book. Almost every one of us would like to read faster and more efficiently (think of the reading we could do in a year if we read more efficiently), and hence applying what we can gain from this book should yield rich dividends.

SELECTIONS FROM LATIN PROSE AND POETRY by Karl Pomeroy Harrington and Kenneth Scott. Cambridge, Massachusetts: Harvard University Press. 1956. \$5.00.

Intended especially for college freshmen but useful for all who can read Latin and wish to enjoy "the wealth of literature for the perusal of which they have supposedly been 'prepared.'" Illustrated.

THE SELF: EXPLORATIONS IN PERSONAL GROWTH edited by Clark E. Moustakas, with assistance in editing Indian papers by Sita Ram Jayaswal. New York: Harper & Brothers. 1956. xviii + 284 pp. \$4.50.

Notable contributions of nineteen leading thinkers have been assembled to make a volume on the self focused on "a psychology of health, creativity, and growth rather than illness, deviation, and abnormality." "The self is explored or expressed in personal conviction and discovery, as being and becoming."

TOWARD A RECONSTRUCTED PHILOSOPHY OF EDUCATION by Theodore Brameld. New York: The Dryden Press. 1956. xiv + 417 pp. \$4.50.

"The deepest problem is to move forward." Major premise: The culture of America and the world is passing through one of the greatest periods of transformation. Minor premise: Education is a fundamental agency of culture.



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